hosts, suppressing xylem-feeding vector populations and using resistant cultivars. Its emergence in Europe with considerable negative impact on olive culture has emphasised the importance of extended monitoring of susceptible host plants and potential vectors, in regions with favourable conditions for bacterium spread. Under this assumption this study aimed to evaluate the presence and diversity of Xf vectors, their hosts and the potential role of functional diversity associated with the vector's natural enemies, under climatic conditions like those foreseen for the Iberian Peninsula due to the global warming effect. Invertebrates were vacuum sampled during the autumn of 2016, from olive canopies and weeds, in 117 sampling sites distributed by an olive production region with more than 16 thousand square kilometres, where 585 olive trees were sampled, after two successive years with summers and autumns with temperatures and drought above average. Auchenorrhyncha, predators and parasitoids were identified to the lowest taxonomic level possible. *Philaenus tesselatus* Melichar and *Neophilaenus campestris* (Fallén) were the identified potential Xf vectors. Abundance of vectors and natural enemies was compared between olive canopy and weeds through GLMs. Mean abundance was generally higher on weeds with statistically significant differences for all analysed taxa, except for Platygastroidea (Hymenoptera), Coccinellidae (Coleoptera) and Aranea. This study showed the resilience of potential Xf vectors under conditions of high temperature and dryness associated with global warming conditions, as well as the notorious importance of weeds as hosts to vectors, despite their scarcity and availability, and reveals the existence of natural suppression relationships between potential vectors and parasitoids, even in these climatic conditions.

Improvement of a real-time lamp protocol for the detection of *Xylella fastidiosa* in *Philaenus spumarius* and *Neophilaenus campestris*

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Abstract: The epidemic spread of *Xylella fastidiosa* (Xf) in southern Italy, with very important economic repercussions for the olive tree industry, makes it advisable to use methodologies for early monitoring of potential tree infection before symptom development in host plants, such as the use of spy insects. This approach is based on the use of molecular tests to detect the presence of Xf, among which the real-time LAMP. In this work, a commercial kit (Enbiotech, Italy) based on this technique, was assayed for detection of Xf in *Philaenus spumarius* and *Neophilaenus campestris* specimens in different demarcated areas in Europe. Spiked samples were tested using the entire insect and bulk insect heads artificially inoculated with serial dilutions (from 106 to 100 CFU) of a strain of *X. fastidiosa* subsp. *pauca* ST53, isolated from an olive tree in Apulia. In order to exclude the loss of sensitivity due to the presence of inhibitors in the reaction, spiked samples were also tested using the insect heads macerated in the extraction buffer provided by the kit. The lowest bacterial dilution was always detected. Approximately 525 individuals of *P. spumarius* were sampled in late summer in an infected olive grove in Lecce (Italy) and tested by this assay. The total incidence of infection ranged from 13% to 16%, using single entire insects or single heads, respectively. This incidence was confirmed with bulk heads to assess the diagnostic sensitivity of the real-time LAMP test; with a progressive increase in bacterial detection observed by analysing a higher number of heads. Finally, heads of approximately 280 *P. spumarius* and *N. campestris*, collected in an infected almond grove in Alicante (Spain), are being analysed to determine the infection prevalence using the commercial kit and the real-time-PCR of Harper et al. (2010, erratum 2013), to compare the sensitivity of both techniques.

Bibliography
Harper